

REMARKS

Claims 1-42 are pending. Claims 1, 37-39 and 42 are amended to improve their readability, or correct minor informalities, not for patentability. In addition, the specification has been amended to correct minor informalities found therein. This responds to the comment on page 2 in the Office Action requesting the specification be checked for possible minor errors.

On page 3 of the Office Action, claims 1-42 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 a parent patent number 6,729,717 in view of Childers et al., U.S. Patent No. 5,442,386 ("Childers").

Filed herewith is a Terminal Disclaimer obviating the rejection. Therefore, it is respectfully requested the rejection be withdrawn.

On page 4 of the Office Action, claims 1, 27 and 41 were rejected under 35 U.S.C. §102(a) as being anticipated by Usui et al., JP 08-276586 ("Usui"). The rejection is respectfully traversed.

Applicants' claim 1 calls for an ink-jet printer head, comprising at least one head unit, each of which includes a first surface where at least one nozzle is provided, a second surface opposite to the first surface, and at least one ink supply hole communicating with the at least one nozzle; a frame including a support where the second surface of each of the at least one head unit is supported, an aperture in the frame disposed such that the second surface of each of the at least one head unit is exposed therethrough, and at least one ink supply passage, an ink supply passage communicating with each of the at least one ink supply hole; and an adhesive applied at the aperture to bond the second surface to the support, the adhesive being quickly hardened.

Applicants' claim 27 calls for a method of manufacturing an ink-jet printer head, comprising providing at least one head unit, each of which includes a first surface where at least one nozzle is provided, a second surface opposite with the first surface, and at least one ink

supply hole communicating with the at least one nozzle; providing a frame including a bottom plate and at least one ink supply passage, the bottom plate including a third surface facing to the second surface of the at least one head unit in a fourth surface opposite with the third surface, the bottom plate having a plurality of apertures that penetrate the bottom plate, each of the at least one ink supply passage communicating each of the at least one ink supply hole of the at least one head unit; and applying an adhesive between the second surface of the at least one head unit and the third surface of the bottom plate through the plurality of apertures, each of the plurality of apertures facing a peripheral portion of the at least one head unit such that the peripheral portion of the at least one head unit is exposed through the plurality of apertures.

Lastly, Applicants' claim 41 calls for a method for bonding a head unit to a frame, comprising providing a plurality of head units, each having a first surface, a second surface opposite with the first surface, and a nozzle plate formed at the first surface having a plurality of nozzles; providing the frame having a third surface; disposing the plurality of head units in a manner that the nozzle plate of each of the plurality head units is positioned in a common plane side by side; disposing the frame in a manner that the third surface of the frame faces to the second surface of each of the plurality of head units; and applying an adhesive between the third surface of the frame and the second surface of each of the plurality of head units such that the plurality of head units are fixed side by side with a nozzle plate of each of the plurality of head units positioned in the common plane. Usui discloses no such apparatus or method.

Usui discloses a recording head main body 12 mounted in a head holder 10. The only adhesive is in a gap 54. As shown in Figs. 5 and 8, the only figures showing the mounting of the recording head 12 and the head holder 10, the gap 54 is between the recording head main body 12 and the head holder 10. There is no aperture in the frame disposed such that a second surface of each of the at least one head unit is exposed therethrough or an adhesive applied at the aperture to bond the second surface to the support, which is part of the frame. The only

adhesive that might possibly be seen is that found in the gap between the recording head main body 12 and the head holder 10 which is not to the second surface of the recording head, rather it would be adjacent the first surface, that having the nozzles, as defined in Applicants' claim 1. Similar comments apply to claim 27 which specifically calls for applying an adhesive between the second surface of the at least one head unit and the third surface of the bottom plate through the plurality of apertures, the bottom plate being a part of the frame.

As to claim 41, in Usui, it would be extremely difficult to apply an adhesive between the third surface frame and the second surface of each of the plurality of head units after one is disposed the frame in a manner that the third surface of the frame faces to the second surface of the plurality of head units. It would require, based upon Figures 5 and 8 of Usui, injecting of an adhesive under pressure into the gap 54 to ensure that it filled in the area between the second surface of the recording head main body 12 and the head holder 10. That is the area proximate the reference numbers 10a, 54 to the left side of Fig. 5 and reference numbers 10a, 51 on the right side of the Figure. Fig. 8 shows no adhesive except on the right side between the head holder 10 and the recording head main body 12. Thus, Usui does not literally disclose the invention of claims 1, 27 and 41 and a rejection under 35 U.S.C. §102 is inappropriate. Further, for the reasons discussed, Usui does not suggest the claimed invention as Usui teaches a totally different structure.

Lastly, when the Patent Office relies on a foreign language reference, it is incumbent upon the Patent Office to provide a translation of that reference, not just an Abstract, particularly when the Abstract either does not define the reference numbers as found in the Office Action or the Office Action defines the reference numbers differently than does the Abstract. For example, reference number 22 is defined in the Office Action as an ink supply hole whereas it appears to in fact be a nozzle. Further, reference numbers 52, 54 which are indicated as representing an adhesive are described as representing the recessed part 52 and a

gap 54 into which adhesive is placed. Thus, it is respectfully requested that if Usui is to be relied upon, a translation be provided.

On page 5 of the Office Action, claims 2-10, 12-15, 18, 27-33, 37 and 40-42 were rejected under 35 U.S.C. §103(a) being unpatentable over Usui in view of Momose et al., U.S. Patent No. 5,956,058, (Momose) and further in view of Yamamoto et al., U.S. Patent No. 5,872,583, (Yamamoto) and Childers et al., U.S. Patent No. 5,442,386 (Childers). The rejection is respectfully traversed.

As to claims 2-10, 12-15 and 18, they depend from claim 1. Momose is cited only for teaching a cover plate and thus is only applicable to claims 5 and 13. Moreover, Momose does not overcome the deficiencies of Usui with respect to claim 1 and thus cannot suggest the subject matter of claims 5 and 13.

Yamamoto is cited for teaching a jig having pins for easily assembling the printer head. Again Yamamoto does not overcome the deficiencies of Usui with respect to claim 1 and in any consideration only applies to claims 16 which is not rejected in this rejection. As Yamamoto does not overcome the deficiencies with respect to claim 1, no matter how it might be combined with Usui or Momose, the combination with Yamamoto does not suggest any of claims 2-10 and 12-15 and 18. Lastly, Childers is applied only for teaching a flat cable. Such is only found in claim 10. Childers likewise does not overcome the remaining deficiencies of Usui in view of Momose and Yamamoto in any combination or singly. As such, the combination does not suggest the subject matter of claims 2-10, 12-15 and 18.

As to claims 27-33, 37 and 40-42, claim 27 is directed to a method of manufacturing an ink-jet printer head comprising providing at least one printer head unit, each of which includes a first surface where at least one nozzle is provided a second surface opposite with the first surface, and at least one ink supply hole communicating with the at least one nozzle; providing a frame including a bottom plate and at least one ink supply passage, the bottom plate including

a third surface facing to the second surface of the at least one head unit and a fourth surface opposite with the third surface, the bottom plate having a plurality of apertures that penetrate the bottom plate, each of the at least one ink supply passage communicating with each of the at least one ink supply hole of the at least one head unit; and applying an adhesive between the second surface of the at least one head unit and the third surface of the bottom plate through the plurality of apertures, each of the plurality of apertures facing a peripheral portion of the at least one head unit such that the peripheral portion of the at least one head unit is exposed through the plurality of apertures. Claim 41 has already been addressed.

Usui has been discussed above. As noted, Usui does not disclose a frame including a bottom plate, the bottom plate having a plurality of apertures that penetrate the bottom plate or applying adhesive between the second surface of the at least one head unit and the third surface of the bottom plate through the plurality of apertures let alone that the plurality of apertures face a peripheral portion of the at least one printer head such that the peripheral portion of the at least one printer head is exposed through the plurality of apertures. As claims 28-33 and 37 depend from claim 27 and none of the other applied references, that is to Momose, Yamamoto and Childers overcomes such deficiencies, they being drawn to specific features as discussed above, the combination does not suggest any of claims 27-33, 37, and 43.

As to claims 41 and 42, claim 41 has been discussed above and the Usui deficiencies, with respect to claim 41, are also discussed. Usui neither anticipates nor suggests the subject matter of claim 41, and the remaining references in combination with Usui do not overcome the deficiencies of Usui with respect to claim 41, as they likewise do not suggest the bottom plate having a plurality of apertures that penetrate the bottom plate such that the second surface of each of the plurality of head units is exposed through the plurality of apertures, the adhesive applied through the plurality of apertures for all the reasons discussed above. Therefore, it is respectfully requested that the rejection be withdrawn.

On page 6 of the Office Action, claims 1-10, 12-16 and 18-42 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nagashima, U.S. Patent No. 6,168,255, in view of Usui and further in view of Momose and Childers. The rejection is respectfully traversed.

Independent claims 1, 27 and 41 have been discussed above. Independent claim 19 is added in this rejection. Claim 19 calls for a method of bonding a head unit to a frame, comprising providing at least one head unit having a plurality of positioning holes, each of the at least one head unit having a first surface and a second surface opposite with the first surface; providing a bottom plate at the frame, the bottom plate having a third surface and a fourth surface opposite with the third surface, the bottom plate being formed with a plurality of recesses each of which penetrates the bottom plate; providing a jig having a plurality of positioning pins; providing a cover plate having a plurality of openings; disposing the covering plate on the jig; disposing the at least one head unit on the jig in a manner that each of the plurality of positioning pins is inserted into a corresponding one of the plurality of positioning holes and that the first surface of each of the at least one head unit exposes through a corresponding one of the plurality of openings; disposing the frame onto the jig in a manner that the third surface of the bottom plate faces a second surface of the at least one head unit and the second surface exposes through the plurality of recesses; and applying an adhesive between the second surface of the at least one head unit and third surface of the bottom plate through the plurality of recesses without applying pressure.

First off, Nagashima does not disclose any case of applying an adhesive between the second surface of the at least one head unit and the third surface of the bottom plate through the plurality of recesses without applying pressure. Nagashima applies adhesive 61, 62, 63 to the main body 1. The main body 1 then is received in a recess in a jig main body 70 and a pressing plate 80 which has mounted thereon, via a plate shaped elastic member 82 and nozzle positioning pins 85, a nozzle plate 2. The pressing plate 80 is then brought into position by

seating it on the main body by means of positioning pins 72 of the jig main body 70 and positioning holes 81 in the pressing plate 80. Please note that the upper body when brought down to contact the nozzle plate 2 to the main body 1 is called a pressing plate. The positioning of the pressing plate 80 with respect to the jig main body 70 is called an overlaying and pressing step (col. 8, line 51) wherein a given pressing force is applied so that the nozzle plate 2 is bonded to the front surface 1A of the main body 1 (col. 8, lines 64-66). Thus, Nagashima clearly does not suggest the subject matter of claim 19 and none of the other references, which have been discussed above, singly or in any combination with Nagashima suggests the subject matter of Applicants' claim 19. Further, because the combination cannot suggest the subject matter of claim 19, it likewise cannot suggest the subject matter of claims 20 and 21 depending therefrom for all the reasons discussed with respect to claim 19 and for the additional features recited therein.

As to independent claims 1, 27 and 41, Nagashima does not overcome the deficiencies of the combination of Usui with any of Momose and Childers. As such, the alleged combination cannot suggest the subject matter of claims 1-10, 12-16, 18 and 27-42. Further, the Office Action has not established a reason for making the combinations. For example, the fact that Momose teaches a cover in itself does not provide motivation for providing such a cover to the apparatus of Usui or Nagashima and such applies to the other alleged combinations. The only way one would arrive at Applicants' claimed invention is to use a hindsight analysis of Applicants' invention itself and then assemble bits and pieces that bear some similarity thereto. It is therefore respectfully requested the rejection be withdrawn.

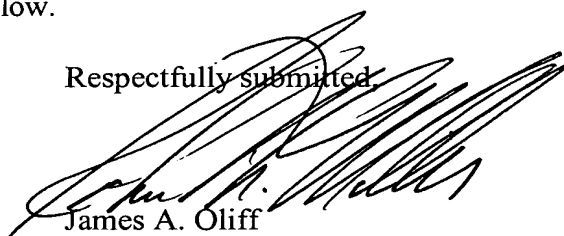
Applicants gratefully appreciate the indication of allowable subject matter in claims 11 and 17, they being allowable if a Terminal Disclaimer is filed and they are rewritten to include the features of the base claim and any intervening claim. However, for the reasons discussed

above, it is respectfully submitted that claims 11 and 17 are allowable as they depend from allowable claim 1.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-42 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

Robert A. Miller
Registration No. 32,771

JAO:RAM/eks

Attachment:
Terminal Disclaimer

Date: November 14, 2005

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
--